



ACQUISITION,
TECHNOLOGY
AND LOGISTICS

OFFICE OF THE UNDER SECRETARY OF DEFENSE

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WASHINGTON, DC 20301-3000

APR 26 2005

Mr. John Stephenson
Director, Natural Resources and Environment
U.S. General Accountability Office
441 G Street, NW
Washington, D.C. 20548

Dear Mr. Stephenson:

This letter is the Department of Defense (DoD) response to the GAO draft report, "PERCHLORATE: A System to Track Sampling and Cleanup Results is Needed," dated March 31, 2005 (GAO Code 360484/GAO-05-462).

DoD finds this draft report to be factually incorrect and fundamentally flawed. It fails to provide Congress and the public with an accurate assessment of perchlorate issues and activities.

The report mischaracterizes DoD's response to perchlorate, a chemical which is unregulated by the Federal government and for which no state has promulgated standards. In an environment where no regulatory requirement exists, DoD has sampled for perchlorate at 800 sites on 101 different facilities over and above the sampling required and conducted pursuant to the Unregulated Contaminants Monitoring Rule of the Safe Drinking Water Act. Furthermore, DoD has invested over \$40 million dollars in developing and demonstrating perchlorate remediation technologies and over \$8 million in pollution prevention measures.

The report risks misleading Congress and the public with respect to the significance and interpretation of key health risk findings and exposure information because it inaccurately summarizes the findings of the National Academy of Sciences as well as other scientific and technical data. In so doing, the report does a serious disservice to both the complexities and nuances of those findings. DoD is disappointed that the extensive comments it twice provided (orally and in writing) to GAO staff on means to improve the accuracy and quality of text, data analysis and its presentation, were largely unheeded. If summaries of the NAS and others' studies are retained in the report, they require significant

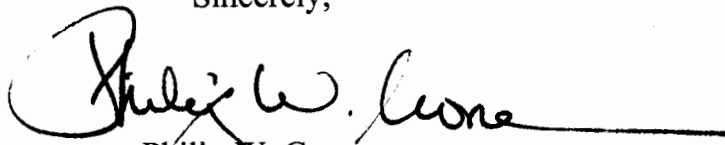


reformulation to be accurate and informative. Enclosed are specific comments and corrections to the data and information in this report.

DoD does not concur with the report's single recommendation that "... EPA use existing authorities or seek additional authority to establish a formal structure to centrally track and monitor perchlorate detections and the status of cleanup efforts across the federal government and state agencies." DoD does not believe that EPA requires additional authority to create the proposed perchlorate data base. DoD will continue to share its information on perchlorate. It is not clear that new formal structures to track and monitor perchlorate will provide added value.

Thank you for the opportunity to review and comment on this report. Questions should be directed to DoD's primary action officer, Ms. Shannon E. Cunniff (703) 604-1529).

Sincerely,

A handwritten signature in black ink, appearing to read "Philip W. Grone", with a long horizontal flourish extending to the right.

Philip W. Grone
Principal Assistant Deputy Under Secretary of Defense
(Installations and Environment)

Enclosure:
As stated

Detailed Comments on DRAFT GAO Draft Report GAO-05-462 "PERCHLORATE: A System to Track Sampling and Cleanup Results is Needed," dated March 31, 2005 (GAO Code 360484)

Highlights

1st sentence: "Perchlorate is the primary ingredient in rocket propellant and has been used for decades in the manufacture and firing of missiles and rockets." Change to: "Perchlorate occurs both naturally and as the result of human activities. Uses include rocket and missile propellants, automobile airbag inflators, fireworks, flares and explosives." This study shows that detections at over 25 percent of the sites are due to natural perchlorate deposits. Identifying only human activities here implies that these are the only sources of perchlorate detections.

para. 3. Paraphrasing the NAS Report is misleading the reader by stating conclusions NAS didn't make. GAO needs to define adverse effect vs. no observable effect.

para. 3. Change 92 to 90 studies--the number that is used throughout the report.

para. 2, 3rd to last sentence: "The Department of Defense (DoD) has sampled and cleaned up perchlorate in some locations when required by laws and regulations, but has been reluctant to sample on or near active installations under other circumstances," is not correct. See general comments below and see comment for page 4, line 15 for correction. Proposed changes are necessary to make this statement correct. DoD follows DoD policy as noted by the *Interim Policy on Perchlorate Sampling, September 2003*. If a site meets the policy's standards of perchlorate 'release' and 'exposure' then an installation is obligated to sample. DoD has also directed perchlorate sampling as part of its range assessment effort.

para. 2, 2nd to last sentence: "DoD's policy limits sampling for perchlorate to certain conditions, such as when there is the potential for human exposure." To accurately reflect DoD policy, change to: "DoD's policy requires sampling for perchlorate at sites where sampling is required by law or regulation, or where a release due to DoD activities is suspected and there is the potential for human exposure."

Body of Report

General: Multiple references to DoD perchlorate sampling policy are inconsistently referred to throughout the report. In at least six instances (Highlights page and pages 4, 10, 19, 20, and 21) the report misstates DoD perchlorate sampling policy. Each instance fails to recognize the entire policy and places the cited example out of context. Contrary to the statements in the report, the sampling policy establishes an affirmative obligation to sample, rather than a limitation. Further, it is unclear why the report requires six separate references to the sampling policy. Recommend that the DoD perchlorate sampling policy and any findings or comments associated with it be consolidated into one section or paragraph.

- p. 1. Change to read: "Perchlorate is a naturally occurring and man-made salt that is easily dissolved and transported in water, and has been found in groundwater, surface water, and soil across the country." This will ensure the reader understands that perchlorate is naturally occurring. Otherwise, the first reference to that fact is not found until page 6.
- p. 2-3. The review of health risks (pages 2-3) is missing a key human study, the Greer Study in the NAS report. Also, two paragraphs attempting to outline all the pertinent health risk information is woefully inadequate. Recommend deleting any reference to health studies as these does not appear to be the subject of the report nor the tasking to GAO.
- p. 3, para. 1, 8th sentence: "Public drinking water systems accounted for more than one third of sites where contamination was found." Change to: "...where perchlorate was..." Contamination implies that the water is unsafe or has been polluted. The change makes the statement purely factual without implying that the source was anthropogenic or that the level is harmful.
- p. 3, para. 1, 3rd to last sentence: "Further EPA does not currently centrally track or monitor perchlorate detections or the status of cleanup activities." The document fails to justify why perchlorate should be tracked differently from other contaminants
- p. 3, line 6. "...4 parts per billion to more than 3.7 million parts per billion." This statement mixes water data with a measurement from a soil sample, for which there is no approved analytical method, and does not truly represent risk and cannot be related to action levels or proposed standards.
- p. 3 line 10. Delete reference to "EPA's provisional cleanup level of 18 parts per billion (ppb)" and change sentence to read "Almost seventy percent of sites had perchlorate concentrations less than 24.5 ppb, the drinking water equivalent to EPA's recently established reference dose." The 18 ppb provisional level is no longer in effect. Continued reference to it suggests it has a continuing relevance.
- p. 4, line 3. Change to "...sampled and cleaned up unregulated contaminants..."
- p.4, line 7. Change sentence to read, "For example, according to EPA and state officials, at least nine states have identified perchlorate contamination which responsible parties have been required to sample and clean up."
- p. 4, line 10. Change sentence to read, "Further, certain environmental laws and programs require private companies to sample for contaminants, which can include unregulated substances such as perchlorate, and report to environmental agencies.
- p. 4, line 17. Change sentence to read, "Where there is no specific legal requirement to sample at a particular installation, DoD's policy on perchlorate requires sampling

where a perchlorate release is suspected because of DoD activities and where a complete human exposure pathway is likely to exist."

- p. 4, line 15. Delete the following sentence: "DoD has sampled and cleaned up even though not currently required to do so by specific environmental laws and regulations. EPA and state officials identified (*insert number*) installations at which DoD was reluctant to conduct sampling on or near the installation." If this is a generalized complaint, then GAO has an obligation to investigate that complaint and include supporting evidence to DoD so that it can provide meaningful input. Unsubstantiated statements should not be included in this report.
- p. 4, para. 1, 4th to last sentence: "Where there is no specific legal requirement to sample at a particular installation, DOD's policy on perchlorate limits sampling to certain conditions, such as when human exposure is likely." Change to: "Where there is no specific legal requirement to sample at a particular installation, DOD's policy on perchlorate requires sampling where service officials suspect the presence of perchlorate based on prior or current DOD activities, and where a complete exposure pathway to humans is likely." This statement closely mirrors the text in the third paragraph of page 10. This provides a more accurate description of DOD policy.
- p. 4, para. 1, 3rd to last sentence: Add: "DoD" after "state agencies" as in, "Finally, EPA, state agencies, DoD, and/or responsible parties" As written, DoD is lumped in with the phrase 'responsible parties.' DoD is widely referred to in this report and should be mentioned in areas where the report notes cleanup actions.
- p. 4, para. 1, 3rd to last sentence: "Finally, EPA, state agencies, DoD, and/or responsible parties are cleaning up or planning cleanup at 51 of the almost 400 perchlorate contaminated sites identified." Change to: "... or planning cleanup at 51 of the almost 400 sites where perchlorate has been detected." The word "contaminated" implies that the site is unsafe or has been polluted. The change makes the statement purely factual without implying that the source was anthropogenic or that the level is harmful.
- p. 5 para. 2. Change paragraph to read, "In January 2005, NAS issued its report on the potential health effects of perchlorate and recommended a perchlorate reference dose, which is an estimated daily exposure level from all sources that is expected not to cause adverse effects in humans, including the most sensitive populations. The reference dose of 0.0007 milligrams per kilogram of body weight is equivalent to a drinking water concentration of 24.5 parts per billion." Simplifies and states facts.
- p. 6, line 3. Change sentence to read, "Total typical production quantities average several million pounds per year. Private industry has used perchlorate to manufacture products such as fireworks, flares, automobile airbags and commercial explosives."
- p. 6, line 8. "In 1992 and again in 1995..." Change to: "In 1992, 1995, 1998, and 2002, EPA established provisional reference doses for perchlorate of 0.0001, 0.0001 to

0.0005, 0.0009, and 0.00003 milligrams per kilogram of body weight per day, respectively. These convert to drinking water concentrations ranging from 1 to 32 parts per billion..." Leaving out the 1998 and 2002 makes it appear that there was less controversy about the reference dose than actually occurred. The data is presented clearly in Table 1-1 (page 14) of the NAS report. It also shows that the NAS reference dose is more conservative than one of the EPA values.

- p. 6, line 10 Change sentence to read, "This converts to a drinking water concentration of between 4 and 18 parts per billion." Calculating DWEL does not include assumptions.
- p. 6, para. 3. Delete entirely through page 8, para. 2. Unless GAO was specifically tasked to review the toxicological science on perchlorate, this does not belong in the report. The NAS, the gold standard for independent expert review, recently completed a review of the science supporting the risk assessment for perchlorate. Since GAO's report inaccurately summarizes the conclusions and significance of the toxicological studies, we suggest that in lieu of these discussions GAO directly quote the results provided by the NAS.
- p. 7, line 24. "consumption" should be "a daily dose." RfDs are dose units, not units of consumption.
- p. 7, line 25. "According to NAS, the reference dose is conservative and includes safeguards to protect the most sensitive population, the fetus of the nearly iodine deficient pregnant woman." Delete "the nearly." Page 119 of the NAS report states that the level is protective of the most sensitive population and does not use the qualifier "nearly" when describing the iodide deficient women as a sensitive population.
- p. 8, line 5. Change "will likely" to "may be less than 24.5 parts per billion." This report should not speculate as to what an MCL will be.
- p. 8, para. 2. Change sentence to read "In 2003, an environmental research group reported that it sampled lettuce purchased in northern California and found perchlorate above 30 parts per billion in four of 22 samples." Or, "In 2003, an environmental research group reported that it sampled lettuce purchased in northern California and found perchlorate between 30 and 40 parts per billion in four of 22 samples."
- p.8, lines 17 to 21. The Food and Drug Administration broadly sampled perchlorate in produce across the nation, not specifically as stated in the report: "from areas where officials believed irrigation water was contaminated with perchlorate."
- p.8, para. 3. Change sentences to read, "Method 314.0 can detect perchlorate concentrations of 1 part per billion in finished drinking water with a minimum reporting limit of 4 parts per billion. Both EPA and DOD officials have expressed

concerns about using Method 314.0 to test for perchlorate in media other than drinking water, such as groundwater, surface water and soil (where researchers mix soil with a liquid to extract the sample). According to EPA, sediment and dissolved ions commonly found in groundwater, surface water and soil can yield false positive results if the method is not used properly."

- p. 9, para. 2, line 4. Change sentence to read, "Ion exchange systems replace the perchlorate ion with chloride, an ion found in table salt, but does not destroy the perchlorate."
- p. 9, line 26. Delete "..., and one federal court has ruled that perchlorate is a hazardous waste under RCRA." The issue of perchlorate as a RCRA waste was not contested or analyzed in the referenced case. The treatment of the issue was limited and superficial and therefore is a weak precedent. Treatment of this case should be handled in a footnote as follows: "One federal district court held that perchlorate is a hazardous substance because it is ignitable. However, the case contained no factual analysis and the issue of whether the perchlorate was a characteristic hazardous waste because of ignitability was not contested. As such, it is not clear how valuable the case is as precedent, even in the district in which it was decided."
- p. 9, line 30. It is an overstatement to state that the SDWA allows EPA to respond to releases of contaminants. The SDWA is not a cleanup statute.
- p. 10, para. 3, line 17 "DoD's September 2003 interim policy on perchlorate sampling allows the military services to sample for perchlorate where service" Change: "allows" to "mandates" The actual language is "shall". This is a significant change in the Sept 2003 policy from the November 2002 perchlorate assessment policy. The difference between 'allows' and 'shall' is the difference between 'may' and 'will.' The Department's *Interim Policy on Sampling for Perchlorate* requires the Military Services to sample for the presence of perchlorate. Over one hundred facilities and over eight hundred different sites within those facilities have been sampled by DoD. DoD's policy is independent of regulator requests and does not specify whether the services may sample for perchlorate when requested by state agencies or EPA apart from these laws. DoD's policy says that absent of applicable laws DoD will sample for perchlorate if there is a release and exposure, it is independent of regulator requests. DoD will sample absent a regulator request if the two standards of release and exposure are met.
- p. 10, para. 3, line 9. Change to read, "DOD's has independently begun clean up at several sites.⁴ Further, we previously reported that DOD has cleaned up perchlorate in instances when directed to do so by EPA or a state environmental agency under various environmental laws." First, the current wording in the draft report implies that DoD has inappropriately declined, or negligently failed, to address perchlorate, when the report contains no information supporting such an implication. Second, it is unclear why the report references closed ranges in this paragraph.

- p. 11, para. 2. Change sentence to read, "Through discussions with federal and state environmental agency officials and a review of perchlorate sampling reports, we identified 390 sites in the U.S. and its commonwealths where perchlorate was found in drinking water, groundwater, surface water, sediment, or soil." Include media that are found in previous table.
- p. 11, para. 2. Change sentence to read, "The concentrations found ranged from a minimum reporting level of 4 parts per billion to more than 3.7 million parts per billion. However, roughly seventy percent of the sites had concentration levels at or below 24.5 ppb, EPA's recently promulgated reference dose for perchlorate." Add new sentence at end, "The military services have been recording their perchlorate data on service-specific databases since directed to do so by the DoD September 2003 *Interim Policy on Perchlorate Sampling*." The 18 ppb provisional level is no longer in effect, and continued reference to it suggests it has continuing relevance. In addition, DoD should be given credit for its perchlorate record-keeping.
- p. 11, para. 2 "Contaminated sites include public water systems, ..." Change to: Perchlorate was detected at a variety of sites including..." The word "contaminated" implies that the site is unsafe or has been polluted. The change makes the statement purely factual without implying that the source was anthropogenic or that the level is harmful.
- p. 12, para. 1. The discussion of the number of sites with detections over 18 or 24.5 ppb requires clarification. First, as previously noted, reference to the 18 ppb provisional level should be dropped. The report should focus on the NAS RfD of 24.5. Second, the comparisons should only be to aqueous media (14 of the 390 sites had no aqueous samples and thus comparing to an aqueous level is not valid). This reviewer counted 247 sites with aqueous perchlorate concentrations below 18 ppb and 275 with concentration less than 24.5. The table below is provided for reference.

Media	Number of sites ^a	Number greater than or equal to 18 ppb	Number greater than 24.5 ppb
Groundwater	205	91	76
Drinking Water	175	40	26
Soil	33	Not applicable	Not applicable
Surface Water	15	7	7
Sediment	5	Not applicable	Not applicable

^a Some sites were counted multiple times since more than one media was sampled. . Seven sites had two aqueous samples over 24.5 ppb.

- p. 13, Figure 1. This table poorly represents the data. It mixes water and soil data and categorizes states in a manner that is not meaningful. Separate charts for water and for soil are warranted.

- p. 14, para. 2. Delete the first sentence. Saying that up to 10 million people could be exposed to perchlorate in drinking water is alarmist unless context is given, such as whether the systems are still on line and what levels of perchlorate are in the water.
- p. 14, 1st line: "Only 14 of the 153 public drinking water systems..." Change to: "of the 3,722 public..." This more accurately represents the relative scale of the perchlorate problem.
- p. 15, para. 1, 1st full sentence. "For example, except as required under specific environmental programs, DOD is not required to report to EPA when perchlorate is found on active installations and facilities." Change to: "DOD tracks its perchlorate sampling and detections, and reports findings to states and EPA as required under environmental programs, however, not all environmental programs require reporting to regulators." This clarifies that DOD does track all of its perchlorate sampling and reports in compliance with the law.
- p. 15 2nd sentence, Delete sentence regarding China Lake. EPA was informed about detections of perchlorate at China Lake. This notification is clearly reflected in documentation provided to and reviewed by EPA.
- p. 17, line 20. This statement is incorrect. Perchlorate was not detected in earlier samples from Patrick AFB, therefore further sampling was discontinued.
- p. 18 second para. (Following the bulleted item on United Technologies). End the sentence after "...18 ppb." If the action levels referred to are non-regulatory, then the states cannot use the levels to "require responsible parties to sample, report, and perform clean up." Regulators cannot invent their own authorities; authorities are either established by law or regulation.
- p. 19, para. 5. Change section heading to read, "DOD's Policy Requires Sampling Under Certain Conditions" to be consistent with the next line.
- p. 20, para. 2. 2nd sentence: "...DOD's sampling policy does not allow the services to sample unless certain conditions are met, such as when there is a likelihood of human exposure." Change to: "... DOD's perchlorate policy requires sampling where service officials suspect the presence of perchlorate based on prior or current DOD activities, and where a complete exposure pathway to humans is likely." This statement closely mirrors the text in the third paragraph of page 10 and provides a more accurate description of DOD policy.
- p. 20, line 12. The first sentence of the paragraph is incorrect and should be deleted. Regardless of the assertions of a few EPA staff, DoD's policy demonstrates we have not been reluctant to sample for perchlorate in the absence of standards.
- p. 20, line 22. Delete and change last sentence: "In February 2005, Utah officials told us that Dugway Proving Grounds had not requested permission from Army

Headquarters to sample, and they did not know whether Deseret requested permission to sample.” Change to “No perchlorate sampling was conducted at Dugway Proving Ground and Deseret Chemical Depot because there is no human exposure pathway.”

- p. 20, para. 2. 1st sentence. Change sentence to read, "According to EPA and state officials, DoD has been reluctant to sample on or near active installations where there is no reason to suspect a perchlorate release or a complete human exposure pathway because there is no specific federal regulatory standard for perchlorate." 2nd sentence change sentence to read, "Where there is no legal requirement to sample at a particular installation, such as under the Clean Water Act's NPDES program, DoD's sampling policy requires the services to sample where a perchlorate release is suspected because of DoD activities and where a complete human exposure pathway is likely to exist."
- p. 21, last sentence of the paragraph that continues from p.20. Delete sentence of the paragraph (on p. 21) and change to: "In the absence of promulgated standards for perchlorate DoD has chosen to assess sites for perchlorate where there is a reason to believe there has been a release resulting from DoD activities and when there is a complete human exposure pathway, regardless of whether or not that exposure level poses a health risk." This paragraph purports to imply that DoD is not acting on federal provisions to evaluate health studies and evaluate perchlorate contamination at military sites. The example used is the Fiscal Year 2005 Ronald W. Reagan National Defense Authorization Act (NDAA) that says that the DoD should develop a plan for cleaning up perchlorate contamination resulting from DoD activities when the contamination poses a health hazard. DoD policy clearly says that action is to be taken when there is a human exposure resulting from DoD activities. The fact is that defining a health hazard when there is no consensus on that hazard, is not possible – DoD has gone beyond the 2005 NDAA and has said action will be taken if there is simply an exposure, regardless if that exposure is enough to pose a health hazard.
- p. 21, lines 15-27. This discussion is not relevant unless it refers to levels detected at the sites being cleaned up versus those not being cleaned up, as well as to pathways at sites being cleaned up. These facts are critical to a cleanup decision. Without these facts, the report implies some sort of random approach to perchlorate response. This is inaccurate. Perchlorate is addressed by the DERP, following the same rules. Simply because we have not decided to single out perchlorate for separate treatment, does not mean that we are not addressing it. We are appropriately using established processes.
- p. 22-24 Study Findings Differed on the Health Effects of Perchlorate Exposure. DoD recommends deleting this entire section headed "DOD and EPA Sponsored Numerous Studies of Perchlorate Exposure, But Findings about Perchlorate's Health Effects Are Inconsistent" that begins on page 22. It is not clear what purpose this summary serves. The NAS relied primarily on the Greer study that the GAO never mentions. The NAS found this to be the best study both in its applicability to human health effects and to study design. What possible purpose does the brief summary of

92 studies serve in this report, when the key, independent reviewers did not rely on them in their findings and recommendations? On page 24, line 4, correct “nearly iodine deficient” as indicated in comment for page 7, line 25. The description of the recent studies does not include an assessment of data quality or judgments concerning the relative value of these studies in the risk assessment of perchlorate. Because the disagreements between the regulated and regulatory community were for the most part due to disputes concerning relevance, data quality of certain studies and their use in risk assessment, the GAO document is deficient in not having addressed these issues. GAO makes the point that many of the studies contained only research findings and seems to place great weight on whether the studies contained conclusions concerning adverse effects. This approach is excessively over simplified. It is not important to demonstrate that many of these publications contained adverse effects. It is important to examine the effects in terms of their overall body of the literature and make a determination if such effects are relevant to the exposed populations and if the publication/work is of sufficient quality and is relevant to the issues of risk assessment.

- p. 24, Conclusion, 2nd sentence: Change: “According to EPA and state environmental agency officials, a leading known cause of the contamination found was defense-related activities.” to “According to EPA and state environmental agency officials, a leading known cause of the contamination found was perchlorate manufacturing related to defense and aerospace activities.” The leading cause of perchlorate contamination is clearly from perchlorate manufacturing activities, as is seen in the SW. Perchlorate is primarily used for both aerospace and defense activities.
- p. 24, line 22. Change to read: “The Academy concluded that an exposure level higher than initially recommend by EPA should protect even the most sensitive populations.” The NAS report was not as tentative as GAO suggests. It did not find that “an exposure level higher than initially recommended by EPA may not” affect health. It was a stronger statement, such as the RfD “should protect the health of even the most sensitive populations.” (pp. 9, 119 of the NAS Report). The GAO report suggests NAS was uncertain when in fact it was quite clear that the proposed RfD was a very conservative, protective value.
- p. 24. There is a description of the NAS report. However, this section is extremely short and does not cover any of the controversy that led to a NAS review. This section would benefit from an in depth explanation of the issues that were put before the NAS and an explanation of the findings of the NAS in light of the controversies surrounding perchlorate toxicity.
- p. 24, para. 2, last sentence: “The report did not recommend a drinking water standard...” Change to: “The report recommends a reference dose which is necessary in developing a drinking water standard...” This change clarifies what the nature of the NAS recommendation was and how it will be used.

- p. 24, Conclusion, 2nd sentence: Change to: "According to EPA and state environmental agency officials, a leading known cause of the contamination found was defense-related activities." to "According to EPA and state environmental agency officials, a leading known cause of the contamination found was perchlorate manufacturing related to defense and aerospace activities." The leading cause of perchlorate contamination is clearly from perchlorate manufacturing activities, as is seen in the SW. Perchlorate is primarily used for both aerospace and defense activities.

APPENDIX I

- p. 27 para. 2. Reporting of maximum concentrations without reporting the median and average, the range of values, the number of samples, and the exact geographical sampling location and date the area was sampled does not reflect the true nature of the results.

APPENDIX II

The summary of sampling results, Table 1, provides extremely misleading results.

Highest Detection reported (column 2) is not organized by media nor type of sample used (aggregate, blended, or point), leading people to compare results from different sources and different analytical procedures. The total number of samples, the mean, and the range of results would provide a more meaningful characterization of the site. Recommend the report include a fair and balanced treatment of the sampling data.

An explanation on the limitations of the data set needs to be inserted before the table in Appendix II. The paragraph should clearly explain that this includes a combination of data for all media, the limitations of the analytical method (EPA method 314.0) used to obtain almost all of the data, that there is no approved method for analysis of perchlorate in soil. Also, a clear explanation that only the highest detection recorded was noted and that subsequent sampling at many sites often could not reproduce similar results and that data quality is not expressed for any of the data in this appendix. These concerns are noted in the text of the report; however, readers will often turn straight to the table and will not have the benefit of the explanation.

In addition, add a comment column to aid in understanding data. For example; entries 165 and 166 in Appendix II show drinking water detections of 19 and 20 ppb in Harford County, MD, yet these have been since sampled literally hundreds of times with no detection ever exceeding 1 ppb.

#96 Holloman – the 16000 ppb for surface water could not be confirmed. Re-test results were non-detects. Either delete or note it could have been a sampling error.

Additional comments and corrections to data are provided in the attachment to this enclosure.

APPENDIX III

- p. 50-61 GAO includes an appendix in columnar format purporting to show the relevant studies concerning perchlorate toxicity since 1998. However, the table shows only publications from the years 2000 to 2004. Moreover, the table does not show the journals in which the work appears, the list of authors, or provide an adequate description of the work. This appendix would benefit from inclusion of sufficient detail that the reader could easily distinguish between the actual individual studies that are listed.

APPENDIX IV

- p. 62, The Resource Conservation and recovery Act (RCRA). 1st paragraph, last sentence. Change: “A federal District Court in California ruled, in part, that perchlorate is a hazardous waste under RCRA because it is ignitable, under certain conditions.” to “A Federal District Court in California ruled, in part, that perchlorate is a hazardous waste under RCRA because it is ignitable, under certain conditions. However, since the court provided no factual analysis in reaching its conclusion, the case’s value as a precedent is not clear.” The *Castaic Lake* case cannot be cited for the categorical conclusion that perchlorate is a hazardous substance. First, the case did not develop its facts in any way. There are clearly circumstances where perchlorate would not be a hazardous substance, and probably would not be held as such even in the district court that decided *Castaic Lake*. Second, it was one district court—that is precedent in only that district.
- p. 62. Delete the last sentence on the page. The statement that RCRA gives authority to states to require perchlorate reporting and cleanup is not necessarily correct. GAO needs to expand on its rationale for this conclusion or delete it. It is certainly not accurate as a categorical statement.
- p. 62, Footnote 9. Delete this footnote or add the following sentence: “The issue of perchlorate as a RCRA waste was not contested in this case; therefore, the analysis was limited and may be of limited use as a precedent.”
- p. 64, lines 25. Delete the last sentence on the page or change to read: “Under RCRA, EPA maintains that DoD installations may be required to sample and monitor off-range where EPA has evidence that perchlorate or other munitions constituents migrating from the range are creating an imminent and substantial endangerment to health or the environment.” EPA has no RCRA authority to require monitoring and sampling for anything related to munitions as long as those munitions are used on an operational range and remain on the range. If EPA has evidence that on-range activities are resulting in the migration off-range on munitions constituents, and the constituents are creating an imminent and substantial endangerment, then EPA argues that it has some authority to direct monitoring under RCRA section 7003.
- p. 65, line 8. Change the sentence to: “EPA has set standards for approximately 90 contaminants, but has not set a standard for perchlorate.” It is beyond the scope of this report to address the other constituents related to munitions.

Attachment to Enclosure: DoD Comments on Draft GAO Report -05-462 Appendix II

Corrections and Additions to Known Navy Perchlorate-Contaminated Sites and Levels of Contamination, as of January 2005

Legend: Red indicates change, Green indicated new information

Site of Contamination			Highest Detection Reported		Cleanup Status
GAO Site #	State	Facility/Site Name	Amount (ppb)	Media	
26	AZ	Yuma Marine Corps Air Station, City of Yuma	150 3.5 4.6 4.2	Soil Groundwater Surface water Drinking water	
42	CA	China Lake Naval Weapons Center, Kern County	720	Groundwater	
72	CA	El Toro Marine Corps Air Station, Orange County	460 1,600	Groundwater Soil	
115	CA	Seal Beach Naval Weapons Station, Orange County	2,460	Soil	
125	CA	U.S. Navy Firing Range, San Nicholas Island, Ventura County	20	Drinking water	We have conflicting data for this site. We are working to correct it.
155	IN	Naval Surface Warfare Center, Crane Division, Martin County	470 67	Soil Groundwater	
169	MD	Naval Surface Warfare Center, Indian Head	480,000 276,000 230 4	Soil Groundwater Sediment Surface water	
170	MD	White Oak Federal Research Center(Naval Surface Warfare Center)	1,400 880 8.5	Soil Groundwater Surface water	Planning
332	TX	McGregor Naval Weapons Industrial Reserve Plant, McLennan County	1,800,000 91,000 6,600 720	Soil Groundwater Surface water Sediment	Underway
382	VA	Naval Surface Warfare Center, Dahlgren	1,200 2,700 7.4 120	Soil Groundwater Surface water Sediment	
390	WV	Allegany Ballistics Lab, City of Rocket Center	35,000 34,900 690	Soil Groundwater Surface water	

The following Installations are not reflected on GAO's Appendix II

					Remarks
	CA	NWS Seal Beach Detachment Concord	2	Groundwater	This site is on EPA's Perchlorate Occurrence Website http://www.epa.gov/swerffrr/pdf/known_perchlorate_releases_in_the_us_09_23_2004.pdf
	CA	Crows Landing Flight Facility (Former)	2.5	Groundwater	
	CA	El Centro NAF	5	Drinking water	
	NC	MCB Camp Lejeune/MCAS New River	9	Groundwater	
	CA	Morris Dam NCCOSC	65	Groundwater	
	CT	New London NAVSUBASE	4	Groundwater	

Addition to Appendix II

240	OR	Adjacent to the Navy Boardman Air Force Range	23 4	Groundwater	Although this is NOT a DoD site, we are concerned about perceptions. The 23 ppb max detect does NOT agree with EPA's Perchlorate Occurrence Website http://www.epa.gov/swerffrr/pdf/known_perchlorate_releases_in_the_us_09_23_2004.pdf
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